LeisureMetaverse

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1. LeisureMetaverse Project

1.1. LeisureMetaverse

LeisureMetaverse is a new normal community project building a social, cultural, and economic community of Web 3.0 Creators and Fans.

The word 'leisure' originates from the Latin word 'Licere'. Licere means to 'set one free', 'free' here meaning freedom from work and obligation. LeisureMetaverse defines leisure as all creative activity free from work and obligation both online and offline.

Meta- means change and expansion, where expansion is not just a mere extension of grounds but a leap to a higher dimension. Metaverse refers to the expansion of the real world into the virtual realm, including the expansion of the traditional economy into the digital economy.

LeisureMetaverse aims to liberate people from work and obligation in the digital economy era introduced by the Fourth Industrial Revolution and technological revolution. LeisureMetaverse considers all creative activities in the digital realm as a new form of labor and hopes to create a new type of employment, Web 3.0 Creator, by sufficiently compensating the activities. With economic and creative freedom guaranteed, Web 3.0 Creator is a job opened to any web user and to have fans.

LeisureMetaverse will use blockchain technology to enable Web 3.0 Creators to claim the rights to their digital content created. It will design a reward system for its members through its own LeisureMeta token (hereafter LM Token) and token economy and provide a sufficient reward for Web 3.0 Creators' data and added value.

Through the reward system, LeisureMetaverse will encourage members to voluntarily create and participate in a Decentralized Autonomous Organization (hereafter DAO). LeisureMetaverse's DAO is a social, cultural, economic, and autonomous community of Web 3.0 Creators and Fans. Within its ecosystem, users will form fandoms by following Web 3.0 Creators, which initially a support system, will be further developed into a social, cultural, and economic community of creators.

LeisureMetaverse aims to provide members an opportunity for the unending manifest of creativity through establishing LM Twin City, an intersection of a metaverse city of the digital realm and a city of the real world. Through doing so, LeisureMetaverse will not confine its ecosystem and DAO to the virtual world, and establish new grounds where virtuality and reality are perfectly synchronized.

In other words, LeisureMetaverse, as a Web 3.0 Enabler fulfilling the values of rights and rewards by presenting a new type of employment and income source of Web 3.0 Creators, aims to present the new normal of the social, cultural, and economic community.

1.2. Web 3.0 Creator, a new form of employment

1.2.1. 4th Industrial Revolution, a new employment in need

Since the Fourth Industrial Revolution, machinery and automation powered by artificial intelligence and big data are replacing traditional jobs. However, this does not necessarily imply freeing mankind from work and obligations. During the Second Industrial Revolution, machines replaced workers leaving them jobless and in starvation, which is ironic as the period was recorded as one of the greatest economic growths of mankind.

Along with the overall social transformation of the Fourth Industrial Revolution, income must be guaranteed for the technological revolution to truly free mankind from work and obligation. In other words, to free mankind from traditional work and obligations during this revolutionary period, the following should be ensured – 1) a new type of employment and 2) a new type of income source.

1.2.2. Digital Economy

The development of computers, the internet, and information and communication technologies has expanded the traditional economy into a digital one and enabled the transaction of digitalized goods and services through e-commerce and such forms. Within the digital economic system, data shared on the internet gained additional value and digital content became tradable.

1.2.3. Web 3.0

Ever since the Internet, people have begun to share thoughts and desires in various forms of digital content such as text, images, soundtracks, videos, and more. In the Web 1.0 era, information flowed in a single stream, where producers and consumers were distinct and web users were able to access information through the creator's content in web portals.

By the Web 2.0 era, information no longer flowed in a single direction. Due to the rise of platforms, the internet in Web 2.0 became a forum where any web users may create and share content. Digital content, enjoyed by the mass, now created infinite value. However, Web 2.0 internet, a centralized server managing all data, allowed certain centralized entities to monopolize data and its value.

In the era of Web 3.0, platforms are created based on blockchain technology without the control of a central server, therefore allowing users to create digital content with their information without a third party such as the internet giants. Web users now recognize the true value of data and have started to demand compensation for the usage of their data.

1.2.4. Web 3.0 Creator

LeisureMetaverse redefines all creative activities (leisure) apart from traditional work and obligations as labor. If this redefined labor is sufficiently rewarded, it will be positioned as a new form of employment.

LeisureMetaverse aims to provide sufficient rewards for digital content created through these creative activities. LeisureMetaverse will preserve creators' data and its value using blockchain technology and allow them to demand the suited rights and rewards of data disclosure and usage. Also, by utilizing blockchain technology, it will issue its token and reward the redefined labor through the token economy.

LeisureMetaverse designates the new employment, creating and being rewarded from digital content free from work and obligation, as the 'Web 3.0 Creators'. It aims to allow any web users to become creators, have fans, and be ensured economic and creative freedom to do so. This field of a new job will be part of the LeisureMetaverse ecosystem.

2. LeisureMetaverse Ecosystem

2.1. LeisureMetaverse Ecosystem

Blockchain ecosystem, based on blockchain technology and network, refers to the interaction and a systematic connection between various elements, such as validators, members, services (DApp), DAO governance, token economy, and more.

Through constructing the LeisureMetaverse ecosystem, LeisureMetaverse aims to 1) guarantee humanistic respect and free will, 2) provide trust and cooperation as social capital, and 3) allow members of the community to create incalculable value through creativity and cooperation. As a Web 3.0 Enabler fulfilling the values of Web 3.0, LeisureMetaverse aims to become the core infrastructure of the digital economy where humanistic respect and free will are established and present the new normal of the social, cultural, and economic community.

LeisureMetaverse will be utilizing blockchain to its fullest potential to ensure trust between members, as the initial purpose of blockchain technology is to overcome such issues among unspecified people. Based on the technology's 'trustless' identity, it will allow various interactions such as transactions between members of the LeisureMetaverse.

Validators are those who verify the integrity of data recorded within the blockchain through a consensus algorithm. LeisureMetaverse enhanced performance and at the same time achieved the finality of the transaction by adopting the compound consensus algorithm of Tendermint and Hotstuff. Validators create and verify blocks through the PoA (Proof of Authority) consensus algorithm, the consensus protocol of LeisureMetaverse Blockchain (hereafter LeisureMeta Chain). LeisureMetaverse will secure a sufficient number of validators for a transparent and stable operation as a decentralized system.

DApp(Decentralized application) refers to application services that are autonomously operated through a Smart Contract of the blockchain system, without a centralized third-party organization. Along LeisureMetaverse's various DApp services, the main services will be the Web 3.0 community "LM NOVA", NFT marketplace 2.0 "playNomm", and "LM Wallet", where rewards are received and as a DID (Decentralized Identity) acts as the portal for the blockchain ecosystem.

DAO Governance is the decision-making system that allows a community to make and carry out decisions to achieve a certain goal. LeisureMetaverse will organize members of the ecosystem into a DAO to ensure their dignity, free will, and trust, and encourage transparent decision-making and voluntary cooperation through the DAO governance.

LeisureMetaverse issued its own LM Token to activate transactions within the ecosystem, elevate usability, and encourage cooperation of the members of the ecosystem through a sustainable economic system and a reward model. Based on the LM Token, LeisureMetaverse will construct a transparent and safe token economy that will bridge online and offline scenes, and the metaverse and the real economy.

LeisureMetaverse will encourage members to actively engage and cooperate through the token reward model, which will reward according to the contribution based on transparent decision-making and the LM Token upon the self-developed LeisureMeta Chain.

2.2. LeisureMetaverse DAO

2.2.1. The Introduction of DAO

DAO is a rising concept of an organizational structure where all opinions are respected and decisions are made transparently. Since decentralized decision-making with a shared goal is allowed, DAO is being highlighted as the new means of organizational management during the reorganized digital economic system of Web 3.0 and will be the vision of the Web 3.0 community.

DAO must set a constructive path while respecting all user opinions and carry out a transparent decision-making process. Also, added value created by the members of the DAO must be able to be shared based on their contribution. However, most of the existing Web 3.0 projects are failing to reach the full potential of the DAO, such as having a horizontal structure or transparent decision-making, due to the monopolization of the projects or by early purchasers. A new form of ecosystem where anyone is free to participate in the management and be rewarded for their contribution is needed.

2.2.2. DAO of LeisureMetaverse

DAO of LeisureMetaverse is a social, cultural, economic, and autonomous community of Web 3.0 Creators and Fans.

Members of the LeisureMetaverse ecosystem can be categorized into general users and Web 3.0 Creators. Users may act as Web 3.0 Creators by creating digital content or following Web 3.0 Creators to form fandoms, which is a community with shared values and goals centered around Creators.

Web 3.0 Creators may receive support from the Web 3.0 Creator Fund. Web 3.0 Creator Fund is a fund created by accumulating 1 million LM every week to support Web 3.0 Creator's activities. Creators interested in the fund will apply for support, and those nominated through LM NOVA voting will be provided with 10 million KRW worth of LM within the Web 3.0 Creator Fund.

Web 3.0 Creators form fandoms or strengthen the relationship of existing fandoms by creating digital content, and minting and selling digital products in various forms of NFTs such as contents, events, and IPs. Any individual who wishes to be a Web 3.0 Creator may gain financial results through these NFTs.

Fandoms may enjoy creators' content, purchase NFTs, or donate through the reward acquired in the LeisureMetaverse ecosystem. Through the reward system and governance of LeisureMetaverse, fandoms not only will be a support system but also create social, cultural, and economic value with Web 3.0 Creators.

Creators and fandoms will be connected through the Creator Fandom Community LM NOVA and NFT Marketplace playNomm's contents and NFTs. LeisureMetaverse defines this social, cultural, and economic community as the

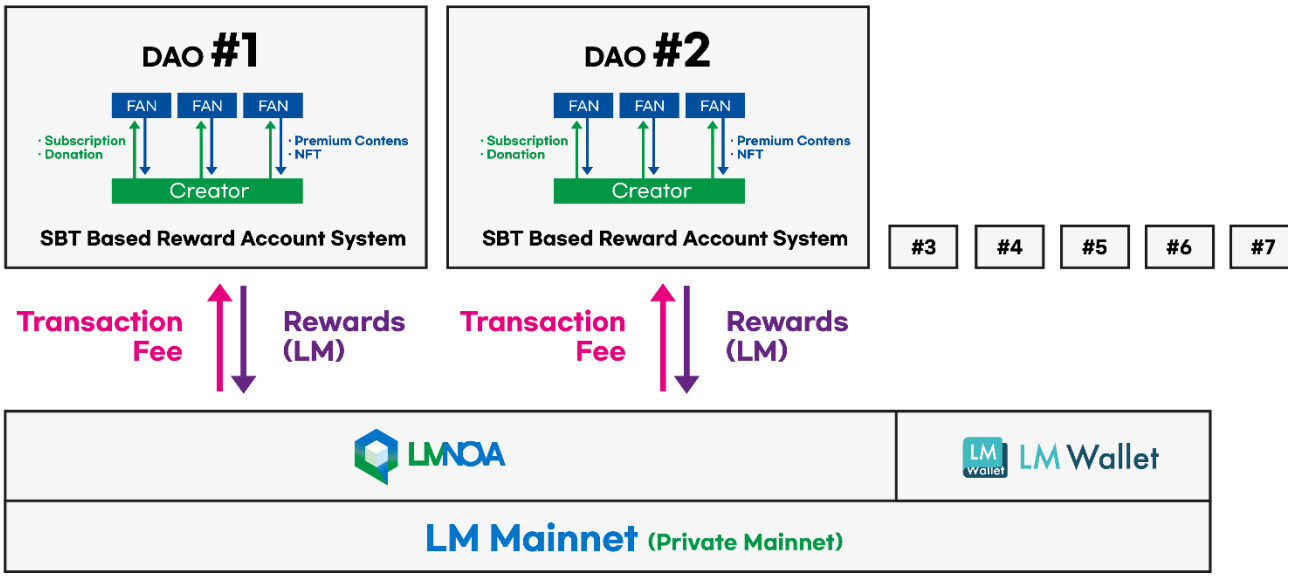
DAO of LeisureMetaverse.

2.2.3. DAO Governance of LeisureMetaverse

DAO governance is a decision-making system for all DAO members to carry out political, economic, and administrative matters with a shared goal. The governance also allows raising different agendas and voting transparently through blockchain technology for specific matters.

The DAO governance of LeisureMetaverse is constructed to provide voting rights through the deposit of LM Token within the LeisureMeta Chain. The DAO will be provided with the right to raise agendas with the deposited LM token and will be able to execute the right based on the proportion of the deposited amount. Through this mechanism, the DAO of LeisureMetaverse will decide the operating policies, and raise and vote on related agendas, such as the expansion of the LeisureMetaverse ecosystem and the management of the DApps, to pursue the ecosystem's continuous development and integrity enhancement. Validators will be nominated by the project for sustainable management during the early stages but will be selected through voting as well once the DAO governance is launched.

LeisureMetaverse will be operated by the project during the early stages to establish the grounds but will be gradually transferred into the DAO governance for a decentralized, autonomous operation. LeisureMetaverse DAO will establish the grounds of operation with the project and eventually allow all members to create social, cultural, and economic value with shared goals.



[LeisureMetaverse DAO Gorvenance]

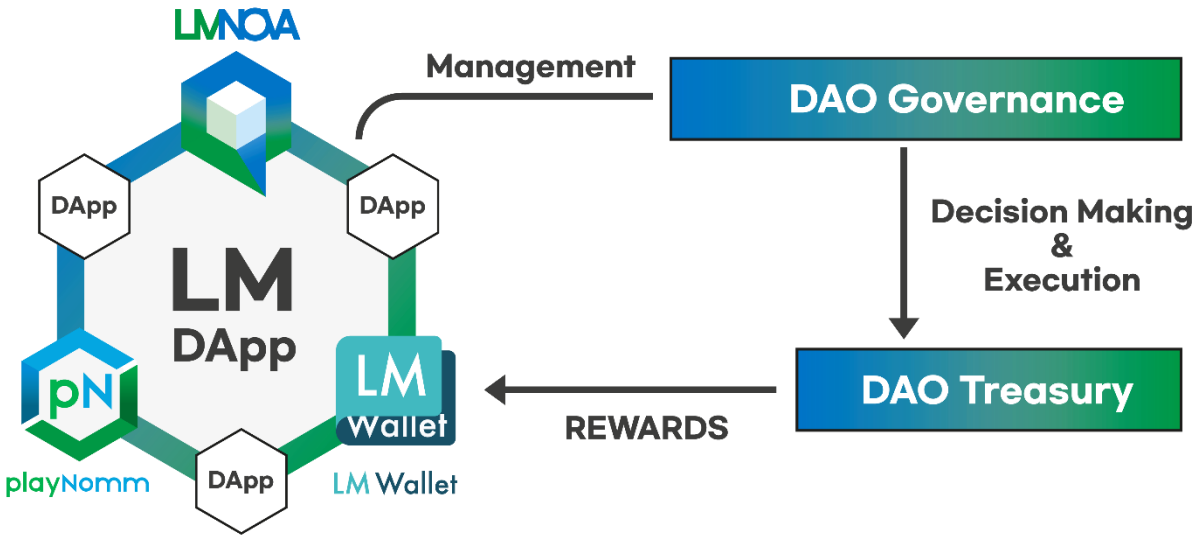
2.3 LeisureMetaverse Token Economy

A limited amount of 5 billion LM Token is issued to anticipate deflation through the increase in demand.

LM Token is mainly classified as LM Token (LMC LM) used within the LeisureMetaverse private mainnet, and the LM Token used for other networks, Centralized Exchanges (CEX), and Decentralized Exchanges (DEX). LM Token will be expanded beyond LM private mainnet to various networks such as Luniverse, BNB Chain, and more through the multichain bridging. LMC LM and ERC-20 LM are used compatibly through the Ethereum-LeisureMeta Chain bridge.

LM Token already exists in two different formats – LM Token of LeisureMeta Chain (hereafter LMC LM) and ERC-20 of Ethereum blockchain. These are interchanged through the Ethereum-LeisureMeta Chain bridge.

Activity within the LeisureMetaverse ecosystem such as trading and execution will be disclosed transparently through the LeisureMeta Chain scan (https://scan.leisuremeta.io/). ERC-20 LM of the Ethereum blockchain is used within the Ethereum ecosystem and for purchase and trading within exchanges, and transparency and integrity will be ensured by disclosing the activity through Ethereum blockchain scans such as Etherscan (https://etherscan.io/).

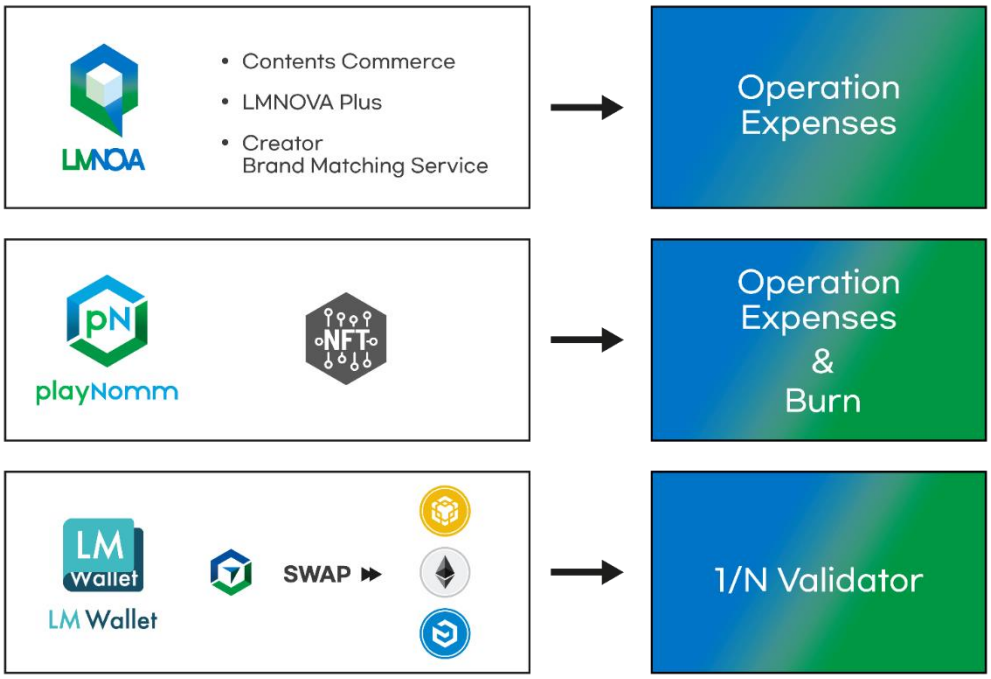


[LeisureMeta Token Economy]

2.3.1 Revenue Model

Members of the LeisureMetaverse ecosystem will be using LMC LM within the ecosystem. So, the platform will charge fees in LMC LM to users according to each DApp policy, and this fee will be the revenue of LeisureMetaverse.

LM NOVA charges subscription fees, Creator-Brand Matching Service fee, and purchasing products fee, which will be used for project development. NFT marketplace playNomm charges an NFT trading fee which will be burned and used for project development based on each ratio. LM Wallet charges transactions of LM from the LeisureMeta chain to other chains through the multichain bridging, and the fee will be provided to the LeisureMeta Chain validators. Validators will earn their quota of the fee from swapping LMC LM for ERC-20 LM and other tokens.



[LeisureMetaverse Revenue Model]

2.3.2 Reward System

Members of the LeisureMetaverse ecosystem will be rewarded with LM Token based on their contribution. Although early reward policies are decided by the project, the authority to make such decisions will be gradually transferred to the DAO governance. Rewards of the early stages of the project will be classified as activity rewards and ecosystem stimulation rewards. Activity reward is to compensate user activities and will be provided in proportion to the contribution of each user. Ecosystem stimulation reward is to compensate users who contribute to the stimulation of the ecosystem by registering NFT within the LeisureMeta Chain without transferring it otherwise. The reward will be provided according to the NFT rarity score.

After DAO tokens are unlocked following the fixed vesting policy, the amount of the activity reward tokens will be determined by the user activity accumulated by the system every reward cycle. The amount allocated for DAO varies in association with the accumulated user activity. Once the amount of the DAO reward reaches a certain amount, the token to be distributed is halved, allowing the reward system to be continued semi-permanently.

■ Activity Reward

Users of the LeisureMetaverse are rewarded as much as their activity within the ecosystem. The current rewarding criteria are 1) creating content utilizing the user's data and 2) interacting within the LeisureMetaverse ecosystem. The criteria of activity rewards may be updated as the project develops and the ecosystem expands.

■ Ecosystem Stimulation Reward

The act of collecting NFT within the LeisureMetaverse platform itself is a direct contribution to the ecosystem. All NFTs in LeisureMetaverse are graded in NFT collection score based on their rarity. Users who have collected NFT assets within the ecosystem up to a certain score will be regarded as a contributor and will be rewarded with tokens in proportion to the collection score.

2.4. LeisureMetaverse DApp

2.4.1. LM NOVA

LM NOVA is a Web 3.0 Creator Fandom Community platform. As a DAO community fulfilling the values of Web 3.0, LM NOVA allows Web 3.0 Creators and Fans to openly create and share digital content.

All LM NOVA users are open to creating and sharing digital content, utilizing their data and its added value. LeisureMetaverse will reward the contribution made to the community, therefore encouraging the members to voluntarily create, register, and interact with the contents within LM NOVA. Thus, LeisureMetaverse will create a new form of employment called Web 3.0 Creators and ensure rights and rewards of data publicity and usage, known as data sovereignty.

[LM NOVA's Characteristics]

LeisureMetaverse aims to support members of the ecosystem to openly engage in creative activities in LM NOVA, apart from traditional work and obligation. Through LM NOVA and its reward model, Web 3.0 Creators are guaranteed economic and creative freedom.

LM NOVA users are more than just a consumer in the community platform. They are prosumers who produce and consume merchandise of their interests, and members of the community with decision-making rights on operational policies. When a Web 3.0 Creator creates and shares digital content, users enjoying the content and following the Creator become fans. Centering around the Creator, fans form a LeisureMetaverse DAO of certain value and goals or become included in an existing DAO.

Forming the DAO, actively participating in its governance, and deciding the policies of the DAO, LM NOVA users are the members of the LeisureMetaverse ecosystem and the community. DAO in LM NOVA may propose service launch, NFT (digital art, video, IP, membership, music, event ticket, coupon, etc.) minting, and more issues of individual interests through governance. Confirmed NFTs are minted through LeisureMetaverse NFT marketplace 2.0 playNomm.

LM NOVA aims to allow users to easily participate in the operation using its blockchain technology. DAO members participating in the operation will be rewarded based on the data created in the process of participation and its value. Since the user's participation in the operation is based on blockchain technology, it is processed fair and transparently through the Smart Contract. LeisureMetaverse will solely compensate the value created by each participant according to their contribution. DAO of LeisureMetaverse will therefore form a sustainable community based on trust and cooperation.

Users of the LM NOVA may verify their identity and express their decentralized identity (DID) using the LM Wallet service. LM NOVA will provide Soul Bound Tokens (SBT), which are non-tradable tokens that inscribe the holder's identity, to Web 3.0 Creators and fandom for identity verification. Thus, users will be able to easily use LM NOVA service safe from hacking, false impersonation, and such threats.

2.4.2. playNomm

NFT marketplace 2.0 playNomm (hereafter playNomm) enables easy minting of NFT, supports the values of NFT through the token economy, and mediates transactions. Within the platform, user individuals or groups may mint their creatives in the form of a video or an image NFT to make their digital assets.

Once a Creator with a certain number of fans proposes NFT minting after DAO is formed, minting of the NFT will be confirmed through voting. Contents minted in NFT will be sold through auctions and such means and NFTs will be exhibited in playNomm's gallery and registered in the market for secondary transactions.

The playNomm platform grants value in NFT by rewarding users who collect NFT through transactions resulting in the stimulation of the platform, and enhancing the liquidity issues of previous NFTs by reconstructing the structure for voluntary transactions. While the previous NFTs are traded at the price determined solely by the creator, NFTs in playNomm are naturally granted value depending on the LM Token rewards. Users may individually decide the value of the NFT according to the opened amount of LM token rewards, which will naturally encourage more NFT transactions between users.

In addition to the online exhibition of NFT on the platform, LeisureMetaverse will host offline exhibition events. Through this, the project will enhance the values of the NFT registered in playNomm and attract various parties who were previously less engaged in the NFT industry as Web 3.0 Creators, and DAO to encourage sustainable development of the Web 3.0 industry.

2.4.3. LM Wallet

Members of the blockchain ecosystem verify themselves and exchange assets through their addresses within the network. Thus, the two most important elements in the ecosystem are the management of the address or the corresponding encrypted key and the management of the assets transacted to the address. LM Wallet is a service provided to safely manage user addresses and assets, anytime and anywhere, within the LeisureMetaverse ecosystem.

LeisureMetaverse invented a multiple-key management system that allows the use of multiple digital signatures in a single account by storing a single user account and the multiple address information assigned per device of the account within the blocks. Through this multiple-key management system, users may create digital signatures while using blockchain-based services with a simple password per device without any plug-ins.

LM Wallet will be the gateway to all services within the LeisureMetaverse cryptocurrency ecosystem using decentralized identity (DID). The DID technology is a technology that allows users to verify their identities without any centralized third-party certification and have sovereignty over their information.

Users will have access to the expanded network through a multichain bridging feature supported by LM Wallet. To mediate the usage and value across networks, LM Tokens will be expanded into standards of more networks. Through the interaction with other DApps from the expanded network, LM Tokens will acquire new usages.

■ Decentralized Identification (DID)

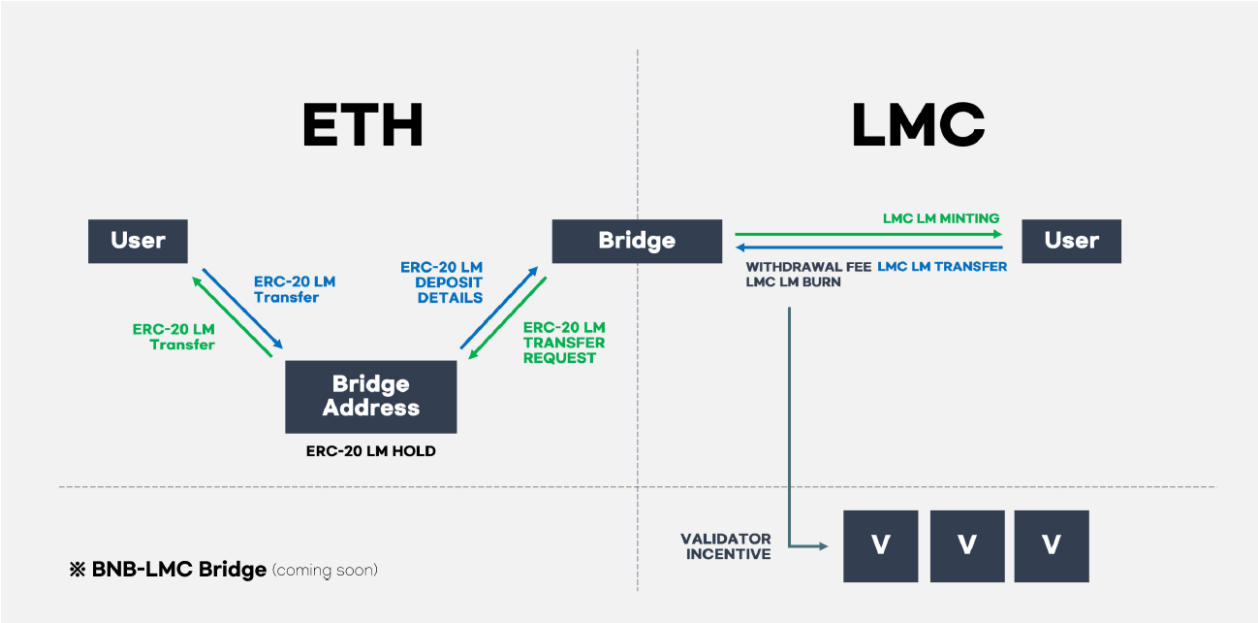
As a gateway to all services of the LeisureMetaverse ecosystem, LM Wallet will be using the OAuth technology to grant users access to all services without any additional verification. Within the ecosystem, the user address will not only indicate the location of the user's asset but also the verification of user identity and ultimately an avatar of themselves.

■ Multichain Bridging

Multichain bridging is a technology that connects the LeisureMeta chain and other blockchain networks through a two-way gateway and allows LM Token to be swapped to any supported standard within the network. Thus, users will be able to use LM tokens for all networks supported by the LM bridge.

LM Token already exists in two different formats – LM Token of LeisureMeta Chain and ERC-20 of Ethereum blockchain. These are interchanged through the Ethereum-LeisureMeta Chain bridge by the following process. If a user wishes to deposit ERC-20 LM to the LeisureMeta chain, the Ethereum chain's bridge contract address will receive and hold the ERC-20 LM, the LeisureMeta Chain gateway will check the deposit record, and mint the same amount of the LMC LM to the user address of LeisureMetaverse chain. If a user wishes to withdraw LM minted

within the LeisureMetaverse chain to the Ethereum chain, the LeisureMetaverse gateway will receive and burn the LMC LM, and the bridge contract address will return the same amount of the ERC-20 LM to the user's Ethereum wallet address.



[LM – ETH Multichain Bridging]

3. Technical Specifications

3.1. Technical Tasks of Current Public Blockchains

Although Ethereum blockchain is the most widely used blockchain-based platform and easily creates NFT value, it is inappropriate to manage regular services. This is because the existing public blockchains, including Ethereum, have limitations of services due to the structure such as low transaction transmission, costly transaction fees, and desperately low data storage.

LeisureMetaverse, based on blockchain, will allow ceaseless transmission of multimedia data and interaction between thousands of users, and the DApp services will be its social network platform. To implement these upon the blockchain, the stated limitations must be tackled.

3.1.1. Finality of Transaction

The first requirement is the finality of the transaction. In a typical web service, a transaction is executed as soon as the payment button is pressed, and the completed transactions are usually irreversible. However, the transaction transfer of Ethereum is not finalized with its creation but only probabilistically as time passes. PoW-based blockchains such as Ethereum allow the reorganization of chains, resulting in an alteration in a completed transaction. To prevent such issues that are against common sense, a transaction must be completed as a block is created, which is known as Instant Finality.

3.1.2. Enhanced Performance

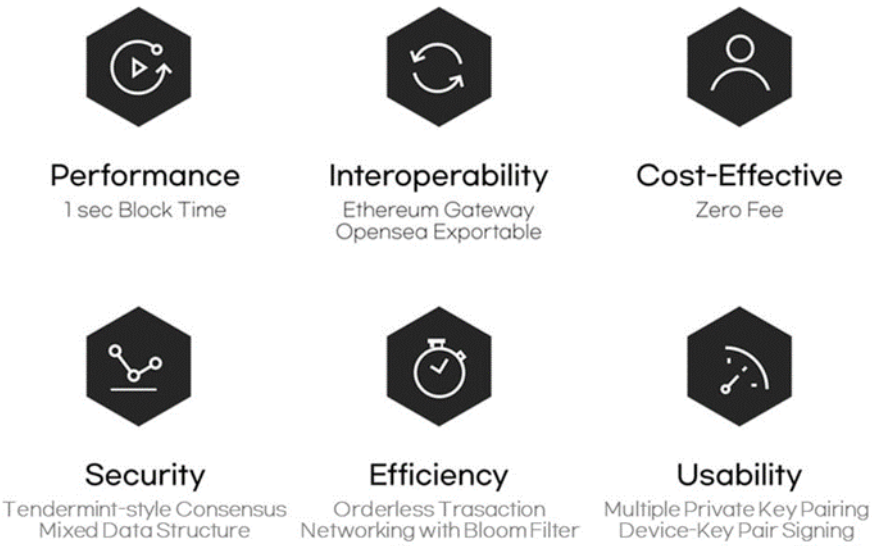
The second requirement is to enhance the performance. LeisureMetaverse's DApp services aim to provide social media services where hundreds of thousands of users interact with one another, which must be backed with at least several hundred transactions per second (TPS). To be qualified with enough nodes is a challenge for existing public blockchains.

3.1.3. Minimal Fee

The third requirement is to have a minimal fee. LeisureMetaverse ecosystem continuously mints and trades NFTs and the activities of DAO users must be recorded, which may lead to a burden in terms of operation with even the least amount of transaction fees. However, in cases of public blockchains, nodes are incentivized to maintain the network, resulting in costly fees in general.

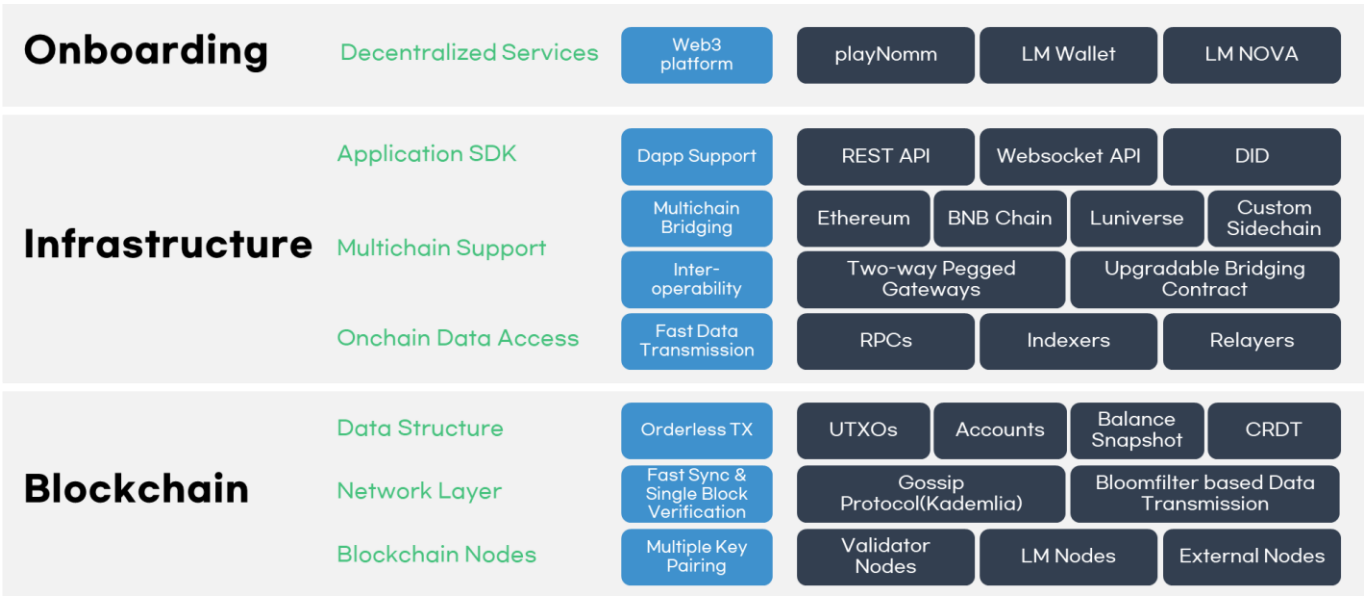
3.2 LeisureMeta Chain

LeisureMetaverse is developed to work through the existing blockchain's common challenges of low-performance level and inconvenient UX.



[LeisureMeta Chain's Features]

LeisureMeta Chain utilizes a compound consensus algorithm of Tendermint and Hotstuff to enhance performance and ensure transaction finality, and Bloom filter to allow simple information exchange by identifying missing transaction information of each node. Additionally, it enhances blockchain usability by linking multiple private keys of devices from a single user address.



[Structure of LeisureMeta Chain]

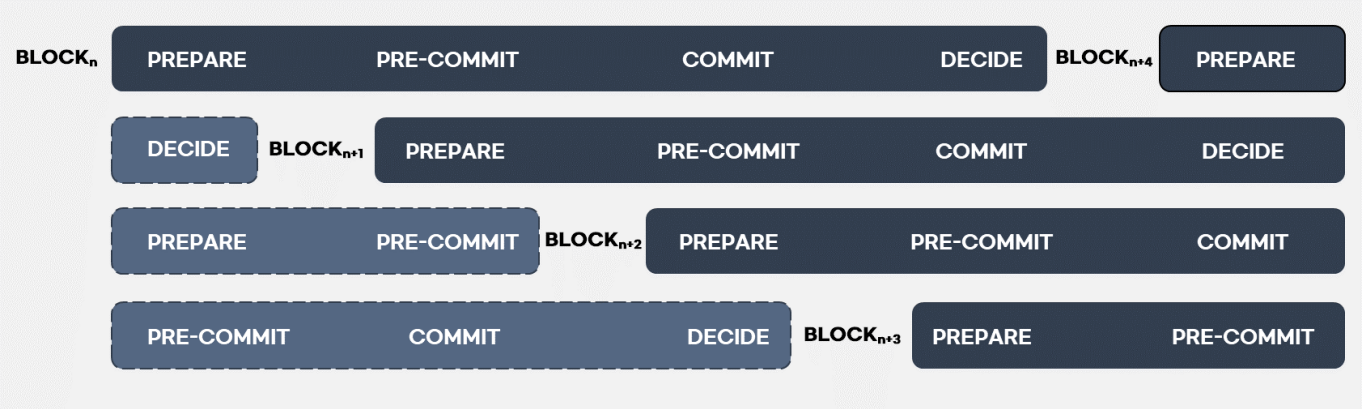
3.2.1 LeisureMetaverse Consensus Algorithm

LeisureMeta Chain is a blockchain platform developed for the stable operation of services within the ecosystem. To provide a sufficient performance level for service operation, it will be operated in the form of a private blockchain with a compound consensus algorithm of Tendermint style BFT and Hotstuff.

The Tendermint consensus algorithm, known as the consensus algorithm of Cosmos Network, is an algorithm intended to solve the previous PoW(Proof of Work) algorithm's issues such as speed, scalability, power consumption, and more. Thus, it was derived from the PBFT (Practical Byzantine Fault Tolerant) algorithm to solve the integrity and staking proof issues and simplify the voting process. Tendermint consensus algorithm proceeds voting twice in three stages each block stacks during block creation and verification to ensure instant finality.

Since Tendermint proceeds two voting in three stages, data transmission (node communication) results in a high network load and blocks are created slower as more validators are added. In worst cases, no block may be created even after several rounds of voting, resulting in a deterioration of data transmission speed (TPS). PBFT-like algorithm has been updated to tackle such challenges, resulting in consensus algorithms such as Hotstuff. Hotstuff simplified Tendermint's voting system of two voting in three stages into one voting in two stages at the cost of instant finality.

LeisureMetaverse embraces the compromised Hotstuff consensus algorithm based on Tendermint, sampling the advantages of each into a compound consensus algorithm. In LeisureMetaverse, just as in Tendermint, validators take turns creating blocks when the quorum is met. Also, just like the Hotstuff algorithm, voting in block creating process is simplified into one in two stages. Thus, LeisureMetaverse efficiently reduces block-creating duration and at the same time enhances block data processing speed.



[LeisureMeta Chain Block Creation Pipeline]

Maintaining services for public blockchains face various challenges such as low transaction and block creation speed and transaction fee due to the broad network scale. Also, if consensus is made within the PoS which is already based on stakes, without enough validator participants and an appropriate dispersion of the stake, network security may be vulnerable.

Therefore LeisureMetaverse, to maintain regular service until the ecosystem is fully equipped, will be operated in the form of a corporate private blockchain where only approved participants may create blocks. Through the PoA(Proof of Authority) consensus protocol which is the system where verified validators create and verify blocks, LeisureMetaverse will only allow reliable organizations and groups to participate as validators. Since participants are limited, LeisureMetaverse 1) achieves a high level of security against attacks of validators securing 51% of network processing capacity, 2) maintains a high level of blockchain data processing amount, and 3) maintains a low network service fee.

LeisureMeta Chain is a hybrid blockchain of permissioned consensus and public audit. All data will be opened transparently through the block explorer(https://scan.leisuremeta.io/).

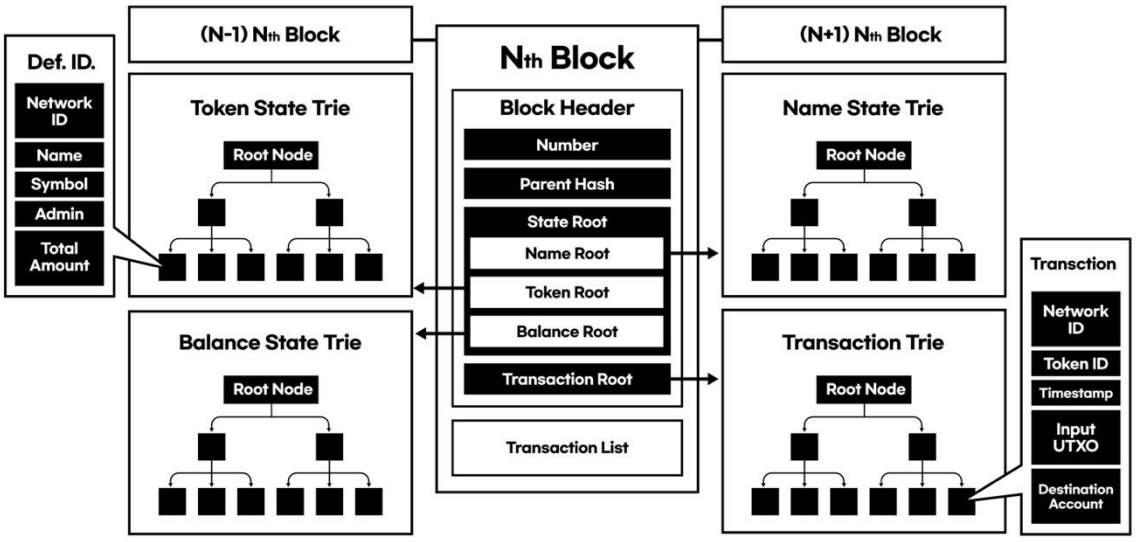
3.2.2. Mixed Data Structures

LeisureMetaverse Chain utilizes a mixed data structure of UTXO (Unspent Transaction Outputs) of Bitcoin and the Account structure of Ethereum.

UTXO structure of Bitcoin only manages transaction transfer history, without separating the balance and the account within the system, thus solving the double-payment problem and enhancing security. Also, through sharding, a database dispersing technology, the structure facilitates the expansion of blockchain processing amount. However, since it only manages transaction transfer history, it is difficult to establish and verify blockchain data status such as a user's balance.

The account structure of Ethereum, unlike UTXO of Bitcoin, records the balance information of all accounts within the block in the form of a data tree. Thus, it allows the confirmation of each transfer's validity and reduction of the transaction data size in half compared to the UTXO structure of Bitcoin. Simplifying the data structure, the structure also enables programmable scripts such as Smart contracts. However, to solve the double payment problem, the transaction issuing order of all accounts must be managed in the order of nonce, which disables parallel processing of transactions. This also means that expansion of the transaction processing amount using sharding is disabled.

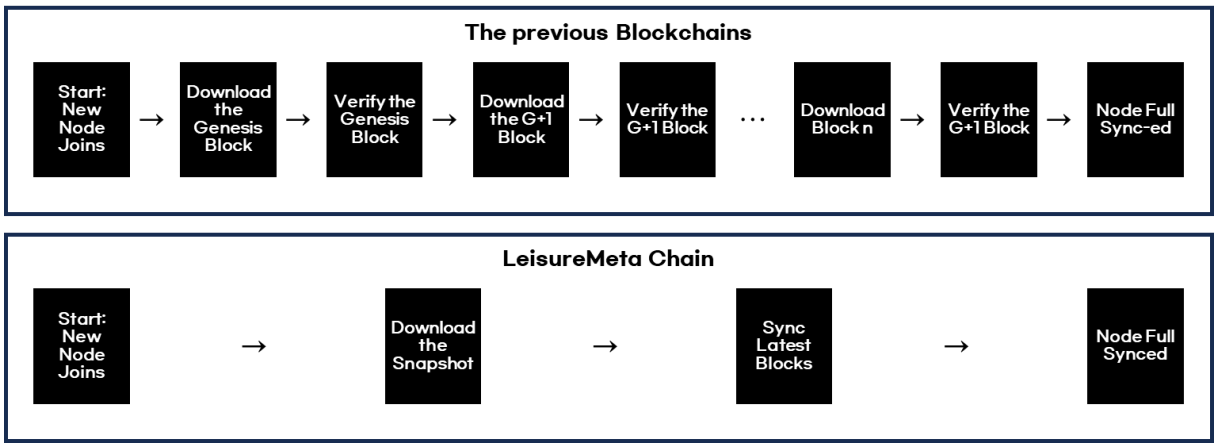
Although LeisureMetaverse chain utilizes the UTXO data structure as Bitcoin does, it manages by indexing the information of the UTXO held by each account address within the block, as Ethereum does ([LeisureMetaverse Chain Data Structure] Balance State Trie). This means that LeisureMetaverse Chain always holds a snapshot of the most recent state and at the same time facilitates the expansion of blockchain processing amount through sharding.



[LeisureMeta Chain Data Structure]

3.2.3. Single Block Verification and Fast Synchronization

By comparing the information of UTXO in the recent block and the known signature, LeisureMeta Chain may verify the efficacy of a new transaction request without synchronizing the previous blocks with the relevant transaction. Likewise, it may verify the efficacy of all new transactions in the new blocks just with the recent blocks. As a result, the LeisureMeta Chain allows immediate participation in the verification of new blocks with the new nodes synchronizing with the recent blocks only.



[Comparison of the verification procedure in LeisureMeta Chain and the previous blockchains]

Unlike those of the previous blockchains where the whole block data must be sequentially verified and downloaded starting from the genesis block, nodes of the LeisureMeta Chain do not need to download sequential block data since single block verification is possible through UTXO snapshot within the block. Even if a node in the LeisureMeta Chain goes down due to a failure, the nodes can immediately restore and participate in the network by downloading in parallel the block data from different nodes.

The sequential nature of block verification in previous blockchains can lead to longer sync times for new nodes, especially as the blockchain grows in size. The total time taken to sync and verify all blocks in the previous blockchains is

$$T = n \times (t_v + t_s)$$

where n is the total number of blocks in the blockchain, t_v is the time taken to verify a single block and t_s is the time taken to sync a single block without verification.

However, new nodes in LeisureMeta can synchronize fast through UTXO snapshot within the block and verify the recent block. The total time taken to sync and verify all blocks in LeisureMeta Chain is

$$T = t_{snap} + t_s$$

where t_{snap} is the time taken to download a snapshot of the current state. Thus, LeisureMeta Chain can reduce the time taken to sync and verify as ΔT, through the single block verification and fast synchronization.

$$\Delta T = n \times (t_v + t_s) - (t_{snap} + t_s)$$

3.2.4. Orderless Transaction

Transactions in general must be in a certain order to prevent double spending. In other words, the order of all transactions in the block-creating process must be clarified and have a verifying logic to validate if a certain order is appropriate. Ordering of the transaction within blocks requires a substantial amount of computation, causing a performance bottleneck.

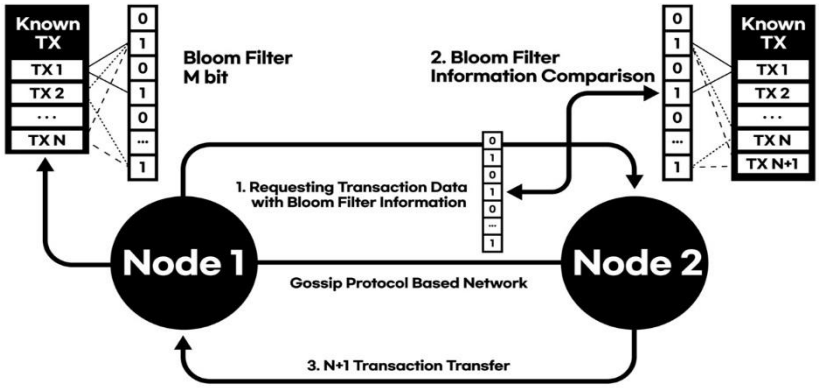
CRDT (Conflict-Free-Replicated Data Types) refers to a data structure that allows all data statuses to be equal, regardless of order, if the status variation is equal. LeisureMetaverse Chain utilized CRDT to enhance performance and reduce order between transactions within blocks. Although in such cases new transactions using certain transaction as a balance may not be created before it is recorded in a block, LeisureMeta Chain based on UTXO allows simultaneous transfer to several users with a single transaction, preventing any inconvenience or bottleneck in creating transactions. Thus, LeisureMeta Chain simplified the logic for creating and verifying blocks and established a data structure where sharding is applicable.

3.2.5. Bloom Filter-Based Data Transmission

All nodes communicate with data of new blocks and transactions it possesses to maintain recent block data and create and verify blocks. Once a new transaction request arises, the information is stored in the Memory Pool of the receiver node, and the node transmits the transaction information to other nodes. If a certain transaction from the block is missing when a block creation is proposed, the relevant transaction data will be received separately and verified for block data integrity.

Since the individual sender node has no information on whether the opposing node has the relevant transaction information, data is transferred inefficiently by the sender disclosing the transaction list and the receiver sending the list of unknown transactions according to the sender's list.

To reduce the bottleneck from the network delay, nodes of the LeisureMetaverse Chain exchange information of known transactions based on the Bloom Filter. Based on the information exchanged, each node quickly verifies unknown transactions and efficiently transmits data that are previously unknown only.

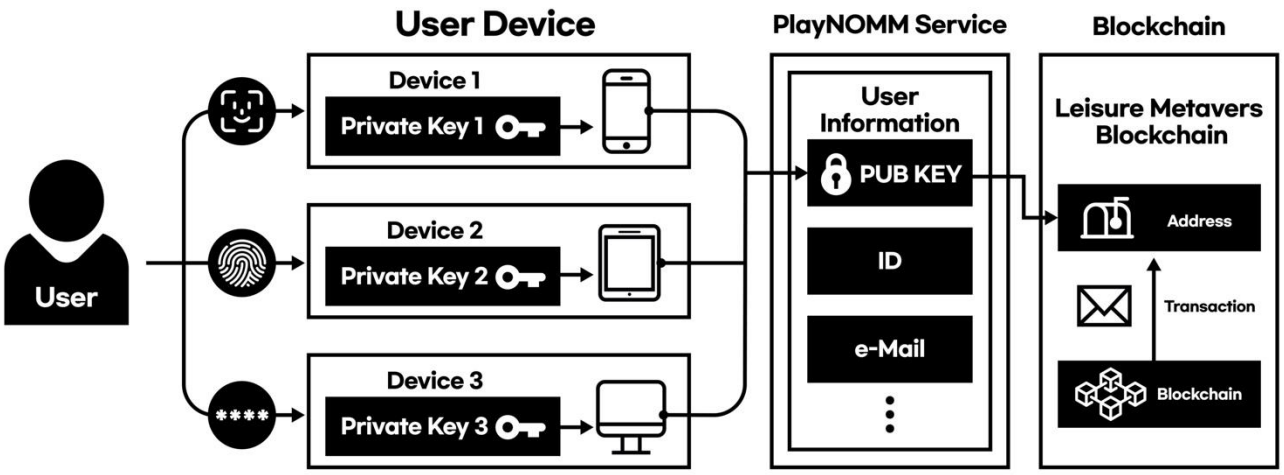


[Overview of Bloom Filter-Based Networking Process]

3.2.6. Private Key Management

Unlike the private key encryption method where a single key is used for both encryption and decryption, blockchains use the public key encryption method where different keys are each used. Here, a private key is a key known to oneself, whereas a public key is shared with others. Information encrypted with a private key may only be decrypted by the paired public key and vice versa. Since data from a blockchain, including cryptocurrency, may be easily stolen once the private key is leaked by a hack it should be safely kept.

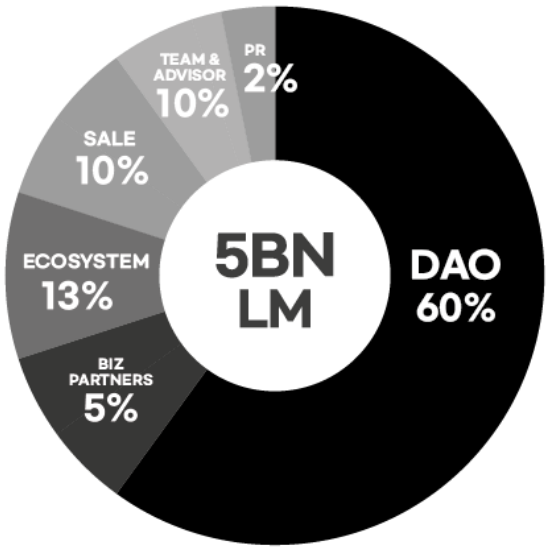
In an attempt at safe and efficient management of encrypted keys, one of the stubborn causes of blockchain usability degradation, LeisureMetaverse developed its own encrypted key securing technology. In a LeisureMeta chain, users may generate multiple private keys that are paired with a single public key. All private keys are encrypted and stored within the browsers of each device in a non-exportable form. Whenever a user needs a private key signature, the encrypted private key may be activated by entering a simple pre-set PIN code. Through the process, LeisureMeta users may safely manage their signatures without managing the private key. LeisureMetaverse holds a patent for the relevant technology (Patent No. 10-2517001).



[LeisureMeta Chain's Multiple Key Pairing System]

4. Token Distribution and Allocation

4.1. Token Information



Token Information			
Name	LeisureMeta	Standard	ERC-20
Ticker	LM	Issuance	5,000,000,000 LM
Address	0x7BEC98609cB6378D6F995e8f8097Ee78376fbec9		

4.2. Token Allocation and Vesting

LM token is distributed according to the allocation above in pursuit of 1) a safe release of the LeisureMetaverse platform, 2) establishing a well-organized LeisureMetaverse ecosystem, and 3) secured voting rights of LeisureMetaverse users. Excluding the 2% allocated for PR, 98% of the token is initially locked from transactions, which will be vested as time passes based on the date it is listed on a major exchange.

- DAO (60%): Used for DAO member rewards and the establishment of the DAO environment. On the 31st day since listing, 1.67% (1/60) will be successively released every 30 days.
- Sale (10%): Sold to purchasers for initial development and operational fund. On the day of listing, 1% will be released and 9% will be released on the 31st day since listing. Afterwards, 10% will be successively released every 30 days.
- Ecosystem (13%): Used for the operation of ecosystem and technological development. After 181 days since listing, 5% will be successively released every 30 days.
- Team & Advisor (10%): Allocated to team, founder, advisors, and more. After 181 days since listing, 5% will be successively released every 30 days.
- Biz Partner (5%): Used for current and future partnerships. After 181 days since listing, 5% will be successively released every 30 days.
- PR (2%): Used for platform activation prior to major exchange listing, and to provide transaction liquidity. All amounts will be released with the token minting.

* Lock-up and release schedule stated above may be varied or extended according to the progress status of the business or the market situation.

5. Business Goals

LeisureMetaverse aims to create and simulate the platform to maintain and enhance the value of LM tokens.

Firstly, platform will be created by setting the following goals:

1) Develop LeisureMetaverse Chain: Operate stable service through securing transaction finality, low gas fee, and enhanced transaction performance to overcome limitations of existing blockchains.
2) Develop LeisureMetaverse wallet and NFT feature: Develop NFT feature for utility transaction convenience.
3) Establish multiple-key management system and Ethereum bridge: Support technological aspects to attract general users.
4) Develop NFT marketplace playNomm: Provide a simple NFT transaction system and user-friendly UX.
5) Establish Web 3.0 Creator Fandom community LM NOVA: Provide utility and content sharing service as the main platform of LeisureMetaverse.

Secondly, the platform will be simulated with the following specific goals:

1) Provide NFT assets of basic transactions through minting four or more NFT seasons.
2) Secure sufficient active users by acquiring 100K users in LM NOVA.
3) Establish and operate LM NOVA DAO governance.

5.2 Roadmap

LeisureMetaverse will be setting standards for autonomous management through creating and simulating platforms and setting a business roadmap as below for operation:

2018. 1Q Develop LeisureMeta Chain
2019. Develop LeisureMeta Chain Wallet
2020. Develop and apply the NFT feature
2021. 3Q Organize NFT marketplace playNomm
2021. 4Q Develop NFT marketplace playNomm
2022. 1Q Implement LeisureMeta Chain multiple-key management system
2022. 2Q Beta launch of NFT marketplace playNomm & open NFT Creative Labs
2022. 3Q Official launch of NFT marketplace service playNomm and Season 1 NFT
2022. 4Q Official sale of Season 1 NFT in playNomm & Implement LeisureMeta-Ethereum Bridge
2023. 1Q Launch Creator fandom community LM NOVA
2023. 2Q Start development of LM Wallet & Achieve launching of three NFT seasons on playNomm
2023. 3Q Reach 100K LM NOVA users
2023. 4Q Official launch of LM Wallet
2024. 1Q Organize and develop the LM NOVA DAO governance system
2024. 2Q Develop LM NOVA DAO governance system
2024. 3Q Test operation of LM NOVA DAO governance system
2024. 4Q Apply LM NOVA DAO governance system

6. Team & Advisor

6.1. Team Members

Sung Uk Moon
CEO
Former Executive Advisor of Skonec Ent.
Former CEO of Future EV
Former Member of the Science, ICT, Broadcasting and Communication Committee at National Assembly of the Republic of Korea

Dong Cherl Han
CTO
Former Director of Security at Rathon Tech
Former Director of Smart Business at UNUS

Sung Sik Park
CCO
Former Account Executive Leader at SK Planet
Former Account Executive Leader at TBWA Korea

Harry Kim
CSO
Former Director of Business Strategy at Ollefarm

Sung Bum Bong
CRO
Former Member of Strategic Planning Committee at Yeouido Institute
Former Head of Central Cooperation Division at the City Government of Incheon

Yul Choi
CPO
Former PD at SBSi Gag Station
Former CP at Seoul Arts Culture

Heungjin Kim
Director of Blockchain Research
Blockchain Development at YosemiteX
Robo-Advisors Development at iRobo

Deuk Li Kong
Technical Strategy Lead
Service Planning at BaaS Store
Service Planning at Scoutchain

Jake Kim
Global Strategy Lead
Former Staff of GALA Korea DAO
Founder of Filgen, Filecoin Mining Company

Olivia Lee
Digital Asset Strategy Lead
Global Marketing at Scoutchain
LLM, Dayton School of Law

Phil Joong Lee
Management & Operation Lead
Two Decades of Experience in Business Planning, Financing, and Accounting

Jong Keun Kim
Lead Security Engineer
PM at BC Card Paybooc, Blockchain Voucher Project

Hee Yong Sung
Lead Developer
Developed Location Based Social Service
Developed Flying Candy, AR Based Service

Hee Chul Jeong
Data Scientist
Recommendation System Development at KT

Kim Geun Hwan
Blockchain Developer
Former Mainnet Development at Saseul
Former Disaster management system development at KHNP

Seong Pil Bae
Blockchain Developer
Ethereum Hardfork Development
NFT Token Development

Jade Kim
Marketing Operation Team Lead
Branding Expert
Brand Marketing Expert

Giggs Lee
Community Strategy Team Lead
Marketing Strategy Expert
Community Building Expert

Yun Hee Han
Marketer
Advertising Expert
Copywriter

Kii Chang Jang
Marketer
Advertising Expert
Art Director

6.2. Advisors

Abdul Hamid M. Juma
Former UAE Govt. Official
Former Chairman of Dubai International Film Festival
Former Deputy Director General of Dubai Creative Clusters Authority
Former CEO of Dubai Media City

Jimmy Cha
Professional Go Player
Chairman of Casino International Group
Former the Head of the Korea Go Players Association
Former Managing Director of Korea Tourism Org.
Champion of Amarillo Slim's Superbowl of Poker

Hyun Ki Baek
Journalist
Former Chief Editor at The Hankyoreh
Founder of The Hankyoreh Newspaper

Min Ki Kim
Journalist
Former Advisor of the Korea Communications Standards Commission

Guh Jong Lee
Documentary Producer
Former Director of Video Production at Korean Broadcasting System

Tae Won Seo
Journalist
Director of Business Administration at Dnews
Former Chief Editor at Dnews

6.3. Technical Advisors

John Wainwright
Computer Scientist
CTO of Mirinae, Inc
Former CTO of Kollective Technology
Former Consultant at Autodesk
Former Chief Architect at Kaleida Labs
Principal Architect for Script X & MaxScript Language

Keun Ho Rew
Professor
Professor at Hoseo University
Former Chairman of International Robot Olympiad Organizing Committee
2017 Minister of Trade, Industry and Energy Award Winner

6.4. Creative Advisors

Sang Gyu Han
Marketing Director
CEO of Commtogether
Former Creative Director at HAHNIN Communications

Chul Jung
Copywriter
Visiting Professor, School of Communications, Dankook University

Soon Jong Ock
Professor
Adjunct Professor, Dept. Media and Communication, Yonsei University

Jong Woo Park
Documentary Photographer
CEO of Production Indivision

Jong Ok Seo
Writer
Travel Writer, TV Dramatist

6.5. Legal Advisors

Yoo Sik Jang

Lawyer

Representative of Law Firm
Dongseo South and North

Jae Yoon Kim

Accountant

Partner at Samil PWC

7. Partners


SUPERCHIEF
인천일보
Skonec entertainment
BURRITO
META OASIS
남동문화재단
NAMDONG CULTURAL FOUNDATION
HI
Asset Management Co.,
M.C.Partners.
Pala
ARTRA
KBCCA
한국블록체인콘텐츠협회
Korea Block Chain Contents Association
SM 서울예술기획
Seoul Arts Management
MEDIUS
META AIRLINE
HYPE LAB
Smart Bird
FAUNUS
GLOBAL INC.
blueshark
mixmag
KOREA
한솔교육
한국열린사이버대학교
NATUS ALIEN CLUB
MOONTREX
kmga
(사)한국모바일게임협회
Korea Mobile Game Association
MARINE BLUES
IAANART
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